

Gastropoda, Pulmonata, Lymnaeidae, *Pseudosuccinea columella* (Say, 1817): First record in Córdoba province, central Argentina

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ABSTRACT: *Pseudosuccinea columella* (Say, 1817) is a lymnaeid snail with great invasive capabilities, and has, at present, a worldwide distribution. So far, the presence of this lymnaeid snail in Argentina was restricted to a few provinces in the northeastern region, such as Misiones, Corrientes, Entre Ríos and some botanical gardens in Buenos Aires, but the recent discovery of specimens in central Argentina (Córdoba) not only represents the first record for the region, but also the southernmost confirmed record in the wild for the Neotropical region and the westernmost for the country.

Pseudosuccinea columella (Say, 1817) is a worldwide distributed species of lymnaeid snail, particularly known because of its invasive capabilities in recent decades (Pointier *et al.* 2007). In Argentina, it has been reported in several localities, such as San Javier on the Uruguay river (Misiones), on Paraná river and along the banks of the Aguapey river (Corrientes) (Hylton Scott 1954; Castellanos and Landoni 1981), Berón de Astrada (Corrientes) (Prepelitchi *et al.* 2003), Santo Tomé (Corrientes) (Moriena *et al.* 2008), Paso de los Libres and Ituzaingó (Corrientes), between Federación and Concordia (Entre Ríos) (Paraense 2005), and two botanical gardens in La Plata and Capital Federal (Buenos Aires) (Castellanos and Landoni 1981; Zelaya 2002). Rumi *et al.* (2008) indicate that *P. columella* is present in the provinces of Misiones, Corrientes, Buenos Aires, Entre Ríos and Santa Fe, but without further information on the sites.

Pseudosuccinea columella is a snail of medical interest, since it has been reported as an effective and highly susceptible intermediate host for the zoonotic trematode *Fasciola hepatica* (Linnaeus, 1758) in different parts of the world (Boray *et al.* 1985; Cruz-Reyes and Malek 1987; Rondelaud and Barthe 1987; Dacal *et al.* 1988; Mas-Coma *et al.* 2009), and being found naturally infected in Australia (Boray *et al.* 1985), Brazil (Ueta 1980; Oliveira *et al.* 2002), Cuba (Gutiérrez *et al.* 2011), Perú (Larrea *et al.* 2007), Colombia (Salazar *et al.* 2006) and Argentina (Prepelitchi *et al.* 2003).

In this paper the presence of *P. columella* is registered in Córdoba province (central Argentina) for the first time.

As part of a continuous surveillance project, snail sampling was carried out at the beginning of summer, in September - October, during 3 consecutive years between 2006 and 2008 in Suquía river, in La Calera commune, Córdoba, Argentina (31°20'48.42" S, 64°20'42.12" W) (Figure 1). The Suquía river basin is located in the semi-arid region of Córdoba province, central Argentina. The sampling site is biogeographically located in the Chaco

Serrano sub-region, (Cabrera 1976). The mean annual precipitation is between 700-900 mm, and mean annual temperature 14-16°C (maximum annual temperature: 20-24°C, minimum annual temperature: 10-11°C) (Vazquez *et al.* 1979).

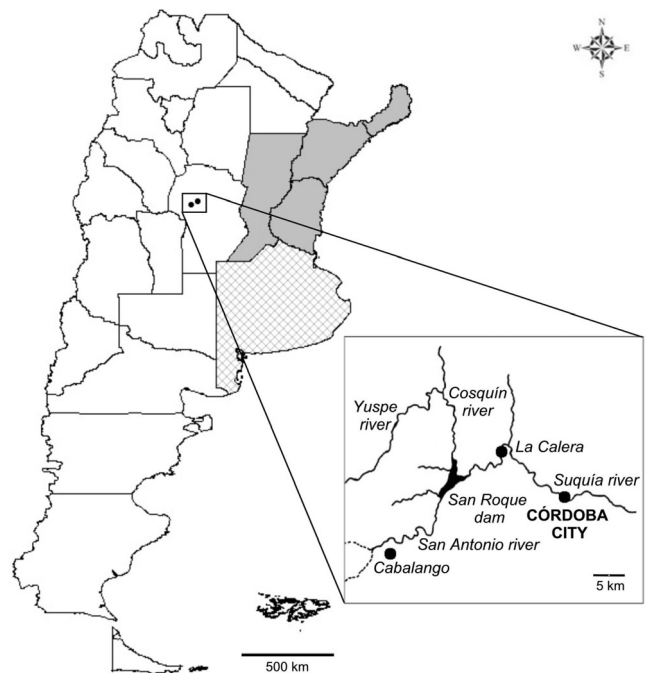


FIGURE 1. Map of Argentina showing the provinces with presence of *Pseudosuccinea columella* (in solid fill grey, populations in the wild; in diagonal cross fill grey, populations in botanical gardens) and the sampling sites in Córdoba province.

Snails were manually collected along the banks of the river and transferred alive to the laboratory, where they were maintained for morphological/morphometric studies (voucher specimens deposited at the malacological collection of "Parasitología y Enfermedades Parasitarias, Facultad de Ciencias Veterinarias y Ambientales, Universidad Juan A. Maza").

Thirty-three snails were collected in Suquía river (Figure 2), and 27 shells were analyzed considering standard measures: Shell Length (SL), Shell Width (SW), Last Spire Length (LSL), Aperture Length (AL) and Aperture Width (AW). The SW/SL, AW/AL and AL/SL means were also calculated. On the other hand, a new population was discovered in Cabalango commune (31°23'50.34" S, 64°33'31.19" W), with eleven snails collected (Figure 1). In both sites shells showed all the characteristics of *P. columella* as described by Hylton Scott (1954), Castellanos and Landoni (1981) and Paraense (1983): tear-shaped shell with a short spire of pointed apex and a large last whorl occupying about three times the length of the rest of the shell (Figure 3), a large and oval aperture, and presence of characteristic minute spiral ridges of the periostracum. Suquía river also harbored the common - snail *Physa acuta*, *Heleobia* spp. and *Pomacea* spp.



FIGURE 2. Sampling site of *Pseudosuccinea Columella* in La Calera commune, Córdoba, Argentina.

The shell's morphometry results are the following (in mm): SL 7.04-14.23 (mean 10.16, ± 1.707), SW 3.83-6.43 (mean 4.99, ± 0.725), LSL 6.12-12.86 (mean 8.67, ± 1.615), AL 4.59-9.18 (mean 6.32, ± 1.216), AW 2.76-5.82 (mean 3.95, ± 0.727), SW/SL mean 0.51 (± 0.026); AW/AL mean 0.64 (± 0.046), AL/SL mean 0.63 (± 0.036). All the shells measured were from adult snails, the 76% corresponding to shells with 4 whorls, and the rest with 3.

This is the first description of *P. columella* for Córdoba province, being, as well, the southernmost confirmed report of the species in the wild for the Neotropical region, and the westernmost distribution in the country. It is suspected that the introduction of these exotic taxa in the country was due to anthropic activity, particularly as a byproduct of the aquarium trade, and so could be its expansion.

The identification of the specimens as *P. columella* is supported by the unmistakable shell morphology and by the morphometry data, coincident with previous descriptions by Hylton Scott (1954), Castellanos and Landoni (1981) and Paraense (1994).

The description of this species in other provinces than the ones previously reported is considered important. *P. columella* is believed to play a fundamental role in the expansion of animal fascioliasis along the province of Corrientes, where seems to be the only vector associated

with the majority of the local epidemics (Moriena et al. 2008). Not only livestock could be affected, but the important question arises around human health, particularly when considering that La Calera commune is densely inhabited, but also is as far as 20 km from the province's capital with the Suquía river passing through the city. Further researches are required in order to assess about the distribution of this vector snail and its role in the epidemiology of fascioliasis in diverse environments.



FIGURE 3. *Pseudosuccinea columella* snail (shell length: 12.86 mm).

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